

LIST OF CURRENT CLAIMS

Claims 1-31 (Canceled)

Claim 32 (Currently Amended). An apparatus comprising a rotating tool that is monolithic with a shaft and a fluid film bearing system wherein the fluid film bearing system comprises two thrust bearings at both coaxial surfaces of the rotating tool blade and further comprising two journal bearings positioned at the shaft.

Claim 33 (Previously Presented). The apparatus of claim 32, designed for balanced high-speed rotation.

Claim 34 (Previously Presented). The apparatus of claim 33, wherein said rotating tool is a disc.

Claim 35 (Previously Presented). The apparatus of claim 33, wherein said rotating tool is a rotor.

Claim 36 (Previously Presented). The apparatus of claim 33, wherein said rotating tool is a cutter.

Claim 37 (Previously Presented). The apparatus of claim 33, wherein said rotating tool is a drum.

Claim 38 (Previously Presented). The apparatus of claim 33, wherein said rotating tool comprises magnets.

Claim 39 (Previously Presented). The apparatus of claim 33, wherein said rotating tool comprises an illumination source.

Claim 40 (Previously Presented). The apparatus of claim 33, wherein said rotating tool comprises sensor for high speed detection or high speed imaging.

Claim 41 (Previously Presented). The apparatus of claim 32, wherein said apparatus is an high-speed cutting tool.

Claim 42 (Previously Presented). The apparatus of claim 32, wherein said apparatus is a high-speed imaging tool.

Claim 43 (Previously Presented). The apparatus of claim 32, characterised in that during rotation better process stability is achieved than with conventional machinery.

Claim 44 (Previously Presented). The apparatus of claim 32, characterised in that during rotation better precision and process reliability is achieved than with conventional machinery.

Claim 45 (Previously Presented). The apparatus of claim 32, characterised in that said apparatus is driven by a motor mounted on a different axis.

Claim 46 (Previously Presented). The apparatus of claim 32, characterised in that said apparatus is driven by a motor mounted on the same axis.

Claim 47 (Previously Presented). The apparatus of claim 32, characterised in that said apparatus is driven by an electric motor.

Claim 48 (Previously Presented). The apparatus of claim 32, characterised in that said apparatus is driven by a turbine.

Claim 49 (Previously Presented). The apparatus of claim 32, wherein the bearings combine both bearing and motor function.

Claim 50 (Previously Presented). The apparatus of claim 32, wherein said rotating tool rotates at at least 10,000 rpm.

Claim 51 (Previously Presented). The apparatus of claim 50, wherein said rotating tool rotates at 20,000 to 100,000 rpm.

Claim 52 (Previously Presented). The apparatus of claim 50, wherein said rotating tool rotates at 40,000 to 100,000 rpm.

Claim 53 (Previously Presented). The apparatus of claim 32, wherein the rotating tool rotates at a surface speed of above 1 km/min.

Claim 54 (Previously Presented). The apparatus of claim 53, wherein the rotating tool rotates at a surface speed of above 10 km/min.

Claim 55 (Previously Presented). The apparatus of claim 53, wherein the rotating tool rotates at a surface speed of 10 km/min to 30 km/min.

Claim 56 (Previously Presented). The use of the apparatus of claim 41 for high-speed cutting.

Claim 57 (Previously Presented). The use of the apparatus of claim 42 for high-speed photography.

Claim 58 (Previously Presented). A high precision and high speed rotation device, comprising 1) a fluid (gas or liquid) bearing system which is a combined journal bearing and thrust bearing and 2) a blade which is monolithic with a shaft, wherein the thrust bearings use the sides of the blade as a thrust bearing surface and the journal bearings use the shaft as journal bearing surface and wherein the blade is positioned between the two thrust bearings.

Claim 59 (Currently Amended) A fluid bearing system for stabilising high speed rotation, characterised in that said bearing system is a combined journal and thrust bearing system, that the thrust bearing uses the sides of the rotating tool as a bearing surface, that the rotating tool is positioned between [[to]] the two bearings and that the rotating tool is monolithic with the shaft.

Claim 60 (Previously Presented). The fluid bearing system of claim 59, used with a combination of self-acting and externally fed fluid film bearings.

Claim 61 (Previously Presented). The fluid bearing system of claim 59, used with magnetic bearings.

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Claim 62 (Previously Presented). The fluid bearing system of claim 59, used with rolling element bearings.